Such things as this, together with the lack of uniformity in the capitalization of names and the abundant typographical errors, mar the appearance of the text very much.

It would seem, in the second place, to one not a student of this group, that there was a great lack in uniformity of description of the species. Contrasted characters, or description of the same points in each species, seem to us almost indispensable for sure identification. Moreover, in modern descriptions of Characeæ we notice that measurements abound, and it would seem that additional data of this kind should be given.

These criticisms may seem trivial; but if heeded we believe that the work, which we have long looked forward to, will be even more useful than it now promises to be; and it goes without saying that every one who undertakes to name these plants must have it in his library. It is privately published and we hope the author will be liberally patronized.

Turning to the Australian work, which comes to us through the courtesy of Baron Müller, we remark that its size permits more letter press as well as larger and handsomer plates, though for practical purposes probably not better. In the text, however, we have much better arrangement and typography, as well as fuller descriptions, which are English. A key to the species of Nitella would have been useful, though probably impossible at present, from the mode of publication and the imperfection of collections. Mr. Nordstedt has undertaken the work at the solicitation of Baron Müller, who has done so much to make known the Australian flora.

It is to be hoped that both of the important monographs thus begun will be rapidly pushed toward completion.

NOTES AND NEWS.

A NEW Cycas from the island of Formosa is described and figured in the January number of the *Journal of Botany*.

DR. GEORGE VASEY died at his residence in Washington, March 4th. A biographical sketch will appear in an early number of the GAZETTE.

MR. F. V. COVILLE, heretofore Assistant Botanist in the Department of Agriculture, has been appointed chief of the Division of Botany, *vice* Dr. Vasey, deceased.

RARE AMERICAN plants recently illustrated in *Garden and Forest* are Galax aphylla (Dec. 21), Agave angustissima (Jan. 4), Aster turbinellus (Jan. 11), and Salix balsamifera (Jan. 18).

DR. J. T. ROTHROCK has severed his long connection with the botanical work of the University of Pennsylvania, and has become general secretary of the Pennsylvania Forestry Association.

THE *Bibliotheca Botanica*, heretofore published by Theodor Fischer in Cassel, is hereafter to be published by Erwin Nägele in Stuttgart. It will be edited as heretofore by Drs. Lürrsen and Hänlein.

PROF. J. C. ARTHUR'S paper on "The gases in living plants", read by appointment at the Washington meeting of the American Association, has appeared in the *American Naturalist*, beginning with the January number.

THE INFLUENCE of the salts of phosphoric acid upon plants has been studied by Herr C. Loew in the case of Spirogyra. He found that it stimulated the development of chlorophyll and the general activities of the cell. In his experiments disodium phosphate was used.

M. E. GAIN has been conducting some experiments to discover the relation of moist soil and moist atmosphere to plant development. A brief summary is as follows: dry air is very favorable to the production of flowers, and moist soil is favorable; dry soil is unfavorable, and moist air very unfavorable to flowering.—*Comptes Rendus.*

MEEHAN'S MONTHLY began its third volume with the new year, and its opening number presents a colored plate of Opuntia prolifera. The leading papers, treating of notable North American plants, are valuable from the amount of information they bring together; and the smaller notes which follow contain information too important to be lost.

THE INITIAL NUMBER of the *Bulletin de l'Herbier Boissier*, under the editorial direction of M. Eugène Autran, is before us. It contains thirty-two pages and two most excellent plates. The two papers are as follows: The genera Achatocarpus and Bosia and their place in a natural system, by Schinz and Autran; and Plantæ Postianæ, by George E. Post.

MR. F. H. KNOWLTON, in an interesting paper in *Science* (Jan. 13), calls attention to the former existence of the genus Artocarpus (bread-fruit trees) in North America. As late as early Pliocene or late Miocene bread-fruit trees existed as far north as Oregon. Eucalyptus is a genus with similar history, formerly existing in North America, but compelled to disappear with changing climate.

M. LOUIS MOROT'S *Journal de Botanique* continues to be full of interesting and valuable material. The number for Dec. 16th contains a new genus of Hymenomycetes, *Sirobasidium*, by Lagerheim and Patouillard; a new genus of Chinese lilies near Polygonatum, called *Aulisconema*, by Hua; a continuation of the monograph of the Orchids of France, by Camus; and the concluding part of the lichens of Carissy and neighborhood, by l'abbé Hue. The first number of the new year contains the initial part of a paper by Guignard on the development of the seed and especially the seed-coat, the present number dealing only with certain Cruciferæ; and a discussion of the relationships of the tribe Clusieæ from a general morphological and anatomical study, by Vesque.

MR. M. L. FERNALD, assistant in the Gray Herbarium, expects to spend a portion of the coming summer studying the flora of northern Aroostook county, Maine. If there seems sufficient demand, he will collect sets of the plants of this region for distribution. The endeavor will be to secure fine specimens rather than a large number of species. It is hoped that an interest may be felt in this region which has already furnished many rare and a few new species.

IN A PAPER on the influence of parasitic fungi on their host plants[1] Mr. J. H. Wakker divides such fungi in accordance with the mode in which they influence the nutrition and growth of the hosts into four groups: *kteinophytes*, of which the only effect is chemical; *hypertrophytes*, which produce hypertrophy of the parts attacked; *isotrophytes*, with but slight chemical and direct effect; and *atrophytes*, which produce atrophy of important organs, commonly of the flower parts. His investigations concern themselves chiefly with the second group.

WITH THE beginning of this year the *Botanische Zeitung* entered upon its second half-century of existence. Advantage has been taken of this period to make some changes in form and arrangement of matter. It is now appearing in two sections, the first issued fortnightly, with single column pages more heavily leaded, devoted exclusively to the publication of complete original articles; the second retaining the original form, weekly, and devoted to reviews of current literature.

DR. J. S. NEWBERRY was not a professional botanist, but his death recalls the important services he has rendered to the science of botany. Being connected with the early explorations of our western territory he had ample opportunity to collect and put upon record many new plants and interesting observations. His chief botanical attention seems to have been given to trees, and his report upon the forest trees of Northern California and Oregon is the most complete ever published. Torrey's *Newberrya* (an Ericaceous genus of two species of the Cascade Mountains of Oregon and the coniferous forests of Northern California, commemorates his services.

IN A PAPER touching on some points in the anatomy and physiology of the Fucoideæ[2] Barthold Hansteen describes the anatomy of Pelvetia and Sargassum, and devotes attention particularly to the assimilation products of Fucus. He concludes that a widely distributed aldehyde called fucusol, having a composition of $C_5H_4O_2$, represents the primary assimilation product; and this aldehyde bears the same relation to the first visible product, fucosan, that formic aldehyde does to starch in the higher plants, though the granules of fucosan are probably not the direct product of the chromatophores, as is the starch of higher plants, but rather the product of accumulation by the phæoplasts, which are found not only in the assimilatory system but also in the sieve-cells and the storage tissues.

[1] Pringsheim's Jahrbücher f. wiss. Bot. XXIV. 499.

[2] Pringsheim's Jahrbücher f. wiss. Bot. XXIV. 317.